



1/24

1 AGCTTTATAA CCATGTGATC CCATCTTATG GTTTC AATCC ATGCACAGGA  
51 GGAAAATTGT GGGCACGAAG TTTCCAAAGG GAAAATTTAT AGATTGGTAG  
101 TTAATGAAAT ACAGTTTTTC TCCTTGGCAA ATTTAATTTA CTAGCTTCAC  
151 TGTATAGGAA AAAGCAGGAA AAAAATTAAA ACCAACTCAC CTCCAAACCT  
201 GTTTTGAGCT TTTACTTGTC TGCCCAATTG ATAGTTTCTA CTCTCTGCTT  
251 TTGATGAAAA TATTTTTTAT TATTTTAATG TAACTTCTGA AAACTAAATT  
301 ATCTAGAAGC AAATAAAAAG ATATTGCTTT TATAGTTCCC AGAAGGAAAA  
351 AACAAACACT AGGAAAGTTC TATCTATCAG ATGGGGGAGA TGTGATGGAG  
401 GCAGTGATAT TTGAGCTGAG CCTTGAACAA TGAACAGGAG TCTACCAAGC  
451 GAGAGGCTAG CGGGTGGCCC TCAAGATAAA ACAACAGCAT GTACAAAGGC  
501 ATGGAGACAT ACACATCTTG ACTCTTCCAG GAATGGTGGG AACGCTGGTG  
551 GAGCTAGAAT GTAGGTACAT AGCATAAAGT GGCAGACGGG AAGCCTTTGG  
601 AAATCTTATT ACATAGGACC CTGGATGCCA TTCCAATGAC TTTGAATTTT  
651 CTGTAGGCTG CCAGCGAAAT TTCCAAGCGT GATAGAGTCA TGTCTATCTA  
701 TGCACTTCAG AAAGACAACC TCAGGGTTAA TGAAGAAAAT GCATTGGAAT  
751 ATAAGAACT GGTGACCAGA GTGATCAATT GCATGACTGT TGTGAAAGTC  
801 CAGGTGAGGG GAGCTGTGGG CAAGGTCAGA GTTGAGAGGC ATTTAGAGA  
851 TAAAATGACA GTAAC TAAGT AGATGTCAGG CTGAGAAGAA AGGGCTGTAC  
901 CAGATATATG GTGCTATCAT TAAGTGAGCT CAACATTGCA GAAAAGGGGT  
951 AGGTTTGGTG GGAGTTGCTC ACAAACATG TTTAGTCTAA GCAAACCAT  
1001 TGCCATGGGC TCAGATAAAA GTTAAGAAGT GGAAACCATT CCTACATTCC  
1051 TATAGGAGCT GCTATCTGGA AGGCCTAGTA TACACGTGGC TTTTCAGCTG  
1101 TGATTTTGTT TGATTTTAGG GATTATTCTT TTTCTGAATC TGAGCAATGT

FIG. 1A



1151 TAGCGTGTA AATACTCACA CCCACAGCTT TGAAGGGTG AGAAGTTATC  
1201 ATAAATCATA TTGAGTTTGT TGTGATACCT TCAGCTTCAA CAAGTGATGA  
1251 GTCAGGTCAA CTCCATGTGA AAGTTCCTTG CTAAGCATGC AGATATTCTG  
1301 AAAGGTTTCC TGGTACACTG GCTCATGGCA CAGATAGGAG AAATTGAGGA  
1351 AGGTAAGTCT TTGACCCAC CTGATAACAC CTAGTTTGAG TCAACCTGGT  
1401 TAAGTACAAA TATGAGAAGG CTTCTCATTC AGGTCCATGC TTGCCTACTC  
1451 CTCTGTCCAC TGCTTTCGTG AAGACAAGAT GAAGTTCACA GTGAGTAGAT  
1501 TTTTCCTTTT GAATTTACCA CCAAATGATT GGAGACTGTC AATATTCTGA  
1551 GATTTAGGAG GTTTGCTTCT TATGGCCCCA TCATGGAAAG TTTGTTTTAA  
1601 AAAAAATTCTC TCTTCAAACA CATGGACACA GAGAGGGGAA CAACACACAC  
1651 CAGGTCCTGT TGGGGGGTGG AGAGTGAGGG GAGGGAACCTT AGAGGACAGG  
1701 TCAATAGGGG CAGCAAACCA CCATGGCACA CATATACCTA TGTAACAAAC  
1751 CTGCACGTTT TGCACATGTA TCCCTTTTTT TTAGAAGAAG AAATAATGAA  
1801 AAAAAACCTT TTTTCTATTT ATATAATCAT GGCATTTATA AGCATCTCTA  
1851 TAGAGAAGGA TAATTGTGCT GAGATTAGAC AGCTGTCTGA GCACCTCACA  
1901 CTGACCTATT TTAAACAAAA TGACTTTCCA CATCACCTGA TTTCGGCTCC  
1951 ATGCRGGGTA AGCAGTTCCT AAGCCCTAGA AAGTGCCGAT CATCCCTCAT  
2001 TCTTGAATTC CTCCTTTTAT TTACCAAAT TCCTGAGCAT GTTCAGGAAA  
2051 GATGAAAAGC TTATTATCAA AATAAGTGGC TGAGATAGAC TTCTTGTCAC  
2101 ATTTGTTACA GTAAAATGGG TCTCCAAGAA AGAAAGATTT GCCTTGGGCT  
2151 CTAGCATGGC CATTTATTTA AGAAAGCATC TGAAACATGA AGCTACCACA  
2201 GCATCTCTCC TGTGGTTCCA GACGGAAGCC TGAGAGTCTA GGAGGAGGTG  
2251 GACCGAGAAA CCCTGCCAAA GTAAGTAGTA GTGCCGGGTT TCTCACAACA

FIG. 1B



3/24

2301 CGATGCAAAG GGGCTAGAAT CAGATGACTA TTTTCATGTT TCAACATACT  
2351 ACACACTGGA AAACGTTACG GCAGACTCTA CTTTATAATG GGGCTGCAAA  
2401 TGTAATGA CTACTAGAAC TAGGTCCTCT TAATAGCAGC AAAGTTTAAA  
2451 AGGGTCAGAG GGAGCTCCAG ACACAGGTTA GATTTGATTT CTCTCCTAGT  
2501 TCTGCTGTGA ACAAGAGGTA TAAGTTTGGC CAACTCACTT AACCCCTGAA  
2551 GCTCAGTTAC CTTATCTGTA AAATGATTGC ATTGTACTAG GTGTTCTCTA  
2601 AAATTTCTTC TACCTCTGAC TTTT TAGGAG ACTAATTTTT AACTCCTTTT  
2651 TAAGCTATTG GGAGAAAAAT TTAATTTTTT TTCAAAGTT ACCTTGAATC  
2701 TCTAGAGCAG TTCTCAAAAC TATTTTGTC CAGGCAAAGG AAATGAGACT  
2751 AGGTACCCAG AATGAGGCAC CCTGCATAAA GCTCTGTGCT CTGAAAACCA  
2801 ATGTCAGGGA CCCTGTGATA AATAATTAAA CCAAGTATCC TGGGACACTG  
2851 CTAGTGACAT CGCCTCTGCT GATCACTCTT GCCAGCGAGA CACTCTATAC  
2901 TTGCTTTCTC ATCATTGGCA TCCAACTGC CTACTAATCC ATTGCTTTGG  
2951 AAAGTTTTTT TTAATAAAAA GATTATTTCT ATTAGGAGGA AAACATCCCA  
3001 TGTTAAATAG GAAAATTAAC TGAAATCATT TTCAGATGTG ATTTT TAGCA  
3051 CTTATAGCCA TTTCAAACCA TGGTATTCAT TTATACTATG CTATTTATTG  
3101 TAAACTTCT TTTTTTTTCC AAGGAAAATA AGATAGTTTG CTTTATTTA  
3151 AAACAGTAAC TTTCTTATAT TGGGGCACTG ACCAAAATTC AATACTGGTA  
3201 CAAATATGTT ACCTAGGGGG TCAAAATATG TGCCAGGTGA ATTTTCTGAA  
3251 TTTCTCTAAA GAGAGAATTT TAAACCTTAT AAAACAATTA GAAACAAGTG  
3301 AGTGAGAGGT GAGCATCAAC AACCTGTGTA ACATAAGCCA CAGTACAAAT  
3351 TTAAGCTGAA TAACCAAGCC ATGTCAGTTA TCCCAAATCA TTTTGTAA  
3401 TATTTAGGAG GATACACATA TTTTCAATAA CTAAAAAGTG AATCTTTACT  
3451 CCTATCTCTT AATACTCGAA GAAGTATAAC TTTCTTCTT TACTAGATTT

**FIG. 1C**



4/24

3501 AAATAATCCA AATATCTACT CAAGGTAGGA TGCTGTCATT AACTATAGCT  
3551 GAGTTTATCC AAAATAGAAA AATCATGAAG ATTTATAAAG CATTTTAAAA  
3601 ATAATCATTT ATAGCAAGTC CTTGAAAGCT CTAAATAAGA AAGGCAGTTC  
3651 TCTACTTTCT AATAACACCT ATGGTTTATA TTACATAATA TAATTCAACA  
3701 AAACAGCATT CTGACCAATG ATAATTTATA GGAAATTCAT TTGCCAAGTA  
3751 TATGTTTTAT TATAAAGTTA ATATTTTGAC CAATCTTAA AATTTTAAAA  
3801 CTCTATTCTG ACATTTCCAG AAGTATTATC TTAGCAAGTC ATCTTTATGA  
3851 TACCACTTAT TAAACTGAAG AGAAACAAGA TGGTACATTC TGGGTTTTAC  
3901 TTTAAAGGG ATTTGATTCA ATAATTTGAT TTATCACTAC TTGAAAATTA  
3951 CATTTTCTTC CTCAGACTGG ATGGCAATGA GATGAAAGCA GCTTTCCTGG  
4001 CTCTCAACTT CCCTTCTTCA TCAATTTTTC CAGCGTTTCA TAAGGCCTAC  
4051 ACTAAAAATT CTAAACTAT ATATCACATT AATATAATTA CTTATAATTA  
4101 ATCAGCAATT TCACATTATC GTTAAACCT TTATGGTTAA AAAATGCAAG  
4151 GTAAGAGAAG AAAAAACAC ATTGAACTAG AACTGAACAC ATTGGTAAAA  
4201 TTAGTGAATA CTTTTCATAA GCTTGGATAG AGGAAGAAAG AAGACATCAT  
4251 TTTGCCATGT AACAGGAGAC CAATGTTATT TGTGATTTC GATTGTCTTT  
4301 GCTGGACTTC TTGGAGTCTT TCTAGCTCCT GCCCTAGCTA ACTATGTAAG  
4351 TCTCACCTTT TCAAGTTTGC TACCAAAATG CATTTGCAAG GAAATGTGAT  
4401 ATTAAATCAC TCTCAATCTC TTATAAACTT CAGAATATCA ACGTCAATGA  
4451 TGACAACAAC AATGCTGGAA GTGGGCAGCA GTCAGTGAGT GTCAACAATG  
4501 AACACAATGT GGCCAATGTT GACAATAACA ACGGATGGGA CTCCTGGAAT  
4551 TCCATCTGGG ATTATGGAAA TGTAGGTAGT CAACGTGCAA TTTTCACTTT  
4601 ATTGTTTAAA AATACGACTT CTTTTTAACA AAAAATGTGC ATGTTAACCA  
4651 TAAAGAAATT AAAAATAAAT TCTAATTACA CATAGCATAC AGTTATAAGT

FIG. 1D



5/24

4701 AAAGGTGACC ATTTTGCTCA TCCGATTTTG TTCCCTAGAG ATAAC TACTG  
4751 TTAATAAGTG TTGCATGATC AGTTAAAATT CAAACCAACA AACACTATGT  
4801 TCAAGGGATT GTGGGTATAT ACAACAAATA TGAACATCCT TTTGCCTTGC  
4851 CTGCAGATAC CCTCAATAAT GCTGAAAGAC TTATACAACA TTACTGCTTC  
4901 CAAAGCTTAG ACTATCTCAC TTTGTTTTCA AAGGAGGTTT TACGACCTTC  
4951 TAAAGAGATT GAAATTGACA TTTCACCTAA AACTCGGGAA ATGTAAATGA  
5001 CAATATTAAT TGGTAAGAGA GGAAAGAAGA AAGAAAGAAG GAAGGAAAGA  
5051 AAGAAAGAAG GAAGGAAGGA AAGAAAGAAA GAAAGAAAGA AAGAGAGAGA  
5101 AAGAAAGAAA AAGAAAAAAG AGAGAAAGAG AGAAGGAAAG AAAGAGAGAA  
5151 GGAAAGGAAA AGAGAAGCAA AGAAAGAGAG GAGCAAAGAA AGGAACACTT  
5201 AGCACTAGTT GGGAGACCCA ACTCTGGAAT TATCAGCTAT ATATTTAACA  
5251 AACGTTATAC TTTTAAATAG CAAACTCTTT ATTGTTTCAA TTTTATCTGG  
5301 TCAATTGGAA AAATAATTTT TGTCTTATCT GTCTCCTTGA AATGTGAGGA  
5351 TCAAAGGAGA CTAAAACATG ATAGCTTTTA AAGTCTATTT CAGTAAACA  
5401 GACTTATATA GAGGGGTTTT TATCATGCTG GAACCTGGAA ATAAAGCAAA  
5451 CCAGTTAGAT GCTCAGTCTC TGCCCTCACA GAATTGCAGT CTGTCCCCAC  
5501 AAATGTCAGC AATAGATATG ATTGCCAAGC AGTGCCCCAT CCAGTGCTCT  
5551 TATCCCAGCT CATCACGATC TTGGAGTTCC CATTTCTCTC TGCAGGTGGA  
5601 ACTGACCTCT GATAAGAAAA GCTCCTCGGA GAACACATGC CTCACTATTT  
5651 GCCATCTACT TTAACAGGGC TTTGCTGCAA CCAGACTCTT TCAAAAGAAG  
5701 ACATGCATTG TGCACAAAAT GAACAAGGAA GTCATGCCCT CCATTCAATC  
5751 CCTTGATGCA CTGGTCAAGG AAAAGAAGGT AAAAATAAAA GGCTTTTTAT  
5801 TTTTGGTGAG GGGAGAGGTT TTACATCCTT CAGTAAATAA CGAGAAGATC  
5851 ACAGTCATTC CCTCTTGA CT ACAGTATGTT GTAGTGTGCA GCACAAAGGG

FIG. 1E



6/24

5901 GGAAGTTATT GGTGATTGCC TGAGGGAAGG CAACTTCTGC CACATCAAAT  
5951 GCTGTGGCTC ACACCTACCT CTACAACCGC TGAGCAAAGC ACTTGAAACC  
6001 TTGACTGTTA GAGGAGCAAA GCTCTGGTCA CACCAATAGG AGCCTCAGTA  
6051 CTTTGCCAAG GACATTTTTTC TGCAAGAGTT AGTTAGGGTT ATTAGATTTA  
6101 GCAAATGAAA ATAGAAGATA TCCAGTTAGG TTTGAATTTT AGGTAAGCAG  
6151 CAGGTCTTTT TAGTATAATA TATCCTATGC AATATTTGGG ATATACTAAA  
6201 AAAAGATCCA TTGTTATCTG AAATTCAAAT GTAAGTGGG ATTGTATATT  
6251 TTGTCTGGCC ATACTAATCC AGGTGAGTGG AAAGAAGAGA TCCATAATGT  
6301 TTTAAATAT TTGCCTGAGT TCATATTCCT ATAAGTATA AATGAGTACC  
6351 TTTCAATTGAC AAGGTAGAGA AAATAAATAA ACTGCATTCT CAGAAGATGA  
6401 TTATTACATA GTCTAATCCA AGGAATCTAT GATGACCAA TGAGGTCCAA  
6451 GTTGCAGAAT AAATTAAGCC TCAGACTTCT GTGTTTATGA GAAGCTGAGG  
6501 TTTCAAACCA GGTAAATCCC TTAGGACACT TAGAAATGCT AAGATATACA  
6551 GAATAAGCTA GAAATGGCTC TTCTTCATCT TGATTATGGA AAAATTTAGC  
6601 TGAGCAACAC TCACTGTTGG CCTCGTATAC CCCTCAAGTC AACAAACCAC  
6651 TGGGCTTGGC ATTCATTCTC TCCCATTCTT CCTTTCTACC TCTCTTTTCC  
6701 AACTCAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG  
6751 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGAAA  
6801 AAACATTGCA AACATGTGTC GTGGGATTCC AACATACATG GCTGAGGAGA  
6851 TGCAAGGTGA GTAGCATCCC TACTGTGCAC CCCAAGTTAG TGCTGGTGGG  
6901 ATTGTCAGAC TATCCTCGCG CGTGTCCATA GTGGGCACCA GTGATGCAGG  
6951 GATGGTCATC AAGGCCAACA TTTGTGCAGT GCTTGCTCTG TGCCAGGTAC  
7001 TGTTCTATGT GCTTTAAGTG TGTTAACTCG GTTCTTCACA GCAATCTTAT  
7051 AGGTTCTATT TTAATCCTAC TTTATGGATG AGGAAACTGA GGTACAGAGA

FIG. 1F



7/24

7101 GGTCACAAAA TCCTTGCCTG GGTCAATTCC AAGCATTTTG GCTGTGGATT  
7151 CTGTGCTCTT AAATATTATG GAACACTGCC TTTTAAGTGT GAATCAAGAG  
7201 TAGACTCAAG TCATATTCAA AAGAATGCAT GAATGGCTAA ATGAAAGAAG  
7251 AATGCTAATA GAATCTATTA ACTTTCTATA GCTCAGACAA TCACTTAATT  
7301 TCTGGACATT CAAAGAACAG CTGCACACAA ACAAAGTGTC TACCTAGGGA  
7351 CCTAACTTAA TGGCAATTTT CCAGATCTCT GAATTGATTG ATTTTCATCAC  
7401 AACAAAGTAGA TAAACCTTGA CATTAGCACA TAGCTAGTTT GGAAACCCCT  
7451 ACTCCCCCAA TCCCCTCCAA GAAAAGAGTC CTTAAATAGA CATTAATATA  
7501 GGCTTCTTCT TTTCTCTTTA TTAGAGGCAA GCCTGTTTTT TTA CTCAGGA  
7551 ACGTGCTACA CGACCAGTGT ACTATGGATT GTGGACATTT CCTTCTGTGG  
7601 AGACACGGTG GAGAACTAAA CAATTTTTTA AAGCCACTAT GGATTTAGTC  
7651 ATCTGAATAT GCTGTGCAGA AAAAATATGG GCTCCAGTGG TTTTACCAT  
7701 GTCATTCTGA AATTTTCTC TACTAGTTAT GTTTGATTTC TTTAAGTTTC  
7751 AATAAAATCA TTTAGCATTG AATTCAGTGT ATACTCACAT TTCTTACAAT  
7801 TTCTTATGAC TTGGAATGCA CAGGATCAAA AATGCAATGT GGTGGTGGCA  
7851 AGTTGTTGAA GTGCATTAGA CTCAACTGCT AGCCTATATT CAAGACCTGT  
7901 CTCCTGTAAA GAACCCCTTC AGGTGCTTCA GACACCACTA ACCACAACCC  
7951 TGGAATGGT TCCAATACTC TCCTACTCCT CTGTCCACTG CTTAA

**FIG. 1G**



8/24

CATGCTTGCC TACTCCTCTG TCCACTGCTT TCGTGAAGAC AAGATGAAGT  
51 TCACAATTGT CTTTGCTGGA CTTCTTGGAG TCTTTCTAGC TCCTGCCCTA  
101 GCTAACTATA ATATCAACGT CAATGATGAC AACACAATG CTGGAAGTGG  
151 GCAGCAGTCA GTGAGTGTC ACAAATGAACA CAATGTGGCC AATGTTGACA  
201 ATAACAACGG ATGGGACTCC TGGAATTCCA TCTGGGATTA TGGAAATGGC  
251 TTTGCTGCAA CCAGACTCTT TCAAAAGAAG ACATGCATTG TGCACAAAAT  
301 GAACAAGGAA GTCATGCCCT CCATTCAATC CCTTGATGCA CTGGTCAAGG  
351 AAAAGAAGCT TCAGGGTAAG GGACCAGGAG GACCACCTCC CAAGGGCCTG  
401 ATGTACTCAG TCAACCCAAA CAAAGTCGAT GACCTGAGCA AGTTCGGAAA  
451 AAACATTGCA AACATGTGTC GTGGGATTCC AACATACATG GCTGAGGAGA  
501 TGCAAGAGGC AAGCCTGTTT TTTTACTCAG GAACGTGCTA CACGACCAGT  
551 GTACTATGGA TTGTGGACAT TTCCTTCTGT GGAGACACGG TGGAGAACTA  
601 AACAATTTTT TAAAGCCACT ATGGATTTAG TCATCTGAAT ATGCTGTGCA  
651 GAAAAAATAT GGGCTCCAGT GGTTTTTACC ATGTCATTCT GAAATTTTTTC  
701 TCTACTAGTT ATGTTTGATT TCTTTAAGTT TCAATAAAAT CATTTAGCAT  
751 TG

**FIG. 2**





9/24

	MKFTIVFAGLLGVFLAPALANYNIDVNDDNNNAGSGQQSVSVNNEHNVAN	50
51	VDNNNGWDSWNSIWDYGNGFAATRLFQKTCIVHKMKKEVMPSIQSLDAL	100
101	VKEKKLQGKGPGGPPPKGLMYSVNPNKVDDLSKFGKNIANMCRGIPTYMA	150
151	EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN	185

FIG. 3



10/24

1 GAATTCAAAC AGCAGGCCAT CTTTCACCAG CACTATCCGA ATCTAGCCAT  
51 ACCAGCATTC TAGAAGAGAT GCAGGCAGTG AGCTAAGCAT CAGACCCCTG  
101 CAGCCCTGTA AGCTCCAGAC CATGGAGAAG AGGAAGGTTG TGGGTTCAAG  
151 GAGCTTTTCA GAGTGGAAT CTGTGGATCA GTGATTTATA AAACACAGTT  
201 TCCCCCTTTA TTAGATTTGA ACCACCAGCT TCAGTTGTAG AAGAGAACAG  
251 GTTAAAAAAT AATAAGTGTC AGTCAGTTCT CCTTCAAAC TATTTTAAAC  
301 GTTTACTTAT TTTGCCAAGT GACAGTCTCT GCTTCCTCTC CTAGGAGAAG  
351 TCTTCCCTTA TTTTAATATA ATATTTGAAA GTTTTCATTA TCTAGAGCAG  
401 TGGTTCTCAT CCTGTGGGCC ATGAGCCCTT TGGGGGGGTT GAACGACCCT  
451 TTCACAGGGG TCACATATCA GATATCCTGC ATCTTAGCTA TTTACATTAT  
501 GATTCATAAC AGTAGCAAAA TTAGTTAGGA AGTAGGAACA AAATAACGTT  
551 ATGGTTGTGG TCACCACTAT GTTAGAGGGT CCGCAGCATT CAGAGGGTTG  
601 AGAACTGTTG TTCTAGAGGC AAATAAGAAG ACAGAGTTCC TTGATAGGGC  
651 CCAGAGGCAG TGAAAGAAGT TTCCACGTAG AAAGTGAAGA AGGTCTGGTG  
701 TCCGAAGCAG TGAGGAACTT AAAAAAAGAA AACCAAAAAC ATTGCCAACT  
751 AACAGTCCAG GAGAAGAGCG GGGCATGAAA GGCTGAGTTC CCATGGGATG  
801 CCTTGAATGG AATCAGAGTG TGGGAAAATT GGTGTGGCTG GAAGGCAGGT  
851 GCCGGGCATC TCAGACGCTG GTAGCTGGGG AAACAGGAAA CCCCTTTAGG  
901 ATCCCAAGAT GCCATTCCAA TGAGCTTGAG ATTTTCTCA TGGACTGCCA  
951 GTGAATGTTT CTACGCTCCG GAAATTAATG TTTACTTATT TTCCATATTC  
1001 TAGGGGAGAA CCCTGGGAAA AATGGAGGAC ATTCATTGAA ATATCTGAGT  
1051 CCTGGGATAA GGCAGGCTTG GTCCTACAAC TCTGGTAAAA GTCCATCAGG  
1101 AAGTGCCTTG ACCAAGGCTG GAGTGGAGAG CTGTTGGTGA GATGTAAGGG

FIG. 4A



11/24

1151 CAAGGTTTAG TTGCTAGATA TGTAGATGGC AAGATGGTGC TGCCAACAGC  
1201 CCCCAGAGCT CTAACCCACT GAGAAACCCA GGAATGAATG ATGGGAGATG  
1251 GCTTTGGTGC CAGCTGCTAG TGACATGGCT GGAAAGCTGC ACTGGCTTCG  
1301 AGGCCAGACA ATTCCTCAAG GAAACATCTG GCCAGGGTGC AAGGGCCAGT  
1351 TTCCTTCCTT GGAGTTCCTT TCACAGCTAA GAACATCATC CCCCACCAC  
1401 TGGTTTTGTT AAAAAGTTTT CAGTATGACT TGAGCATGGT CAAGAAGCAT  
1451 AGAGAGGGGG AAATAAGGGT GGAAGGAGCT GGAGAAAGCT TACAATAGGA  
1501 CTGGGTAAAG GGAAGGAGAA GAAACCATTC CCGCATTCCT ATAGGAGCCA  
1551 GTACCAGGAA GGGCAGGTGT ACACACAGAT CTCATCTAAG GCCATGTTTG  
1601 GTTTAGGGAT TACTCTTCTC CCGAATCTGA GCAGCAGCAA TACGTAAAAT  
1651 ACCCACACCC ATGGCTTCCA TATTCCAGAA CTTATCACAA ACCGTGTAGA  
1701 GTTTACTGAG ATACCTTCGT CAGAGGATGA GTCAGAGGCC TCCTGCCTAA  
1751 GGGCCCTACT GAGCAGGCAG CTAAAGGCTT CCGGGCCTCT GCAGCTCCAC  
1801 AGATACAGGA GAGGGAAGCA GATAAGCCGT GGAATCCACC TGAGCACACC  
1851 TAGCTTGAGC AAAGCTGGTC AGGTACAAAT AGCAGAGGGC TGAATGTCTG  
1901 TGAGCACGCC GCCTGATCCT CTGCTCCACC AACTCCTGC CGCCATGAAG  
1951 CTCACAGTAA GTCAGATCTT CTTTCAATG CAGCACCATA CAACATTAAT  
2001 AGTCAGGGGT GAGGGGGTCT GACTCTTACG GCACTGTTAC CATAGTGGAA  
2051 ATATTCTCCT TTCTTTTCAT GGAATCATGG TGTTTACAAG CATGTCCATA  
2101 GAGAAGAAGA ATTGCCCCGG AAGAGCCTGT CACAGGCTGA ATACTGTAGA  
2151 ATTGTCTTTC ACACCATCTG TTCCAAGGTT CTACTTAAGA CGAGCAGTCT  
2201 CTGGGCTCCA GAAAGAGTCT TTCTTAGCCT TGATCTCTTT CTTATTTCTG  
2251 ATTTCTCCTT TCTTATCCAT GATTTCCACT TTTACCAGTT CTGGGCATGT

FIG. 4B



12/24

2301 TCCGGTCAGA CTGGAAGATC ACTGTTGTCA AAAC TAGTCT TCAACACTCT  
2351 TGGCTGTTAA CATGAAAACA ACGGTCCTTG GGCCCTGTGC AAGCATTCTCT  
2401 TGGAGAAAGT CTCTGGGGAT GAAGCTATCT CAGTTTCCCC ACTGAAGTCC  
2451 TAGGATACAG AGGCTCAAAC AGAGTGCACA TATTCAATTT CAGCATACTC  
2501 TATTGGCGCT GCTTTATGAA TCATATGAAT TTATGGAATT GGAAATGTAA  
2551 ACTATGACCA AGAAGCGTCC ACCTCAGAAC AGGTTGGGTG GGGAACTCCA  
2601 AGCACAGGCC AGAGGGCTGC GTTCTCTTTC TAGTCTGTCT TAGAGGAGTG  
2651 GTTCTCGACC TTCCTAATGC TGTGACCCTT TAATACAGTT CCTCACGTTG  
2701 TCGTGACTCC CAGCCATAAA ATTACTTTCA TTGCTACTGC ATAACGTAA  
2751 TTTTGCTACC ATTATGAGTT GTAATGTAAA TATCTGATAT GCAAGATACC  
2801 AGATAACCTA AGAAACGGTT GTTTGACCTT TAAAGGGGTC ACAACCCACA  
2851 GGTGGAGAAC TACTGGTCTA GGGTCCTTTA CAGTCCTTTA GCTGCCTCAT  
2901 TTACAGGAGA TAACATCATG CTCAAAACT CCCTCCACAT TTGGCTTTTT  
2951 GGGTTGTTTT GTTTTGTTTT TCAAGACAGG GTTCTCTGT GTAGCCCTGG  
3001 CTGTCCTGGA ACTCACCTTT GTAGACCAGG CTGGCCTCGA ACTCAGAAAT  
3051 CCGCCTGCTT CTGCCTCCTG AGCGCTGGGA TTAAAGGCGT GCGCCACCAT  
3101 GTCTGGCTCA CATCTGGCTT TTTAAGAGAC CGATTTTAAC TTCTTGCATT  
3151 GAAAATAAAT ATAGTAGAAA TGCTTAACCT ACTAAGACAA TAAAAACAGG  
3201 ATTCCTTCTG CTAGGAAGAA CACGTTCCAG ACTAAGGAAA AAAACCTTTT  
3251 CAGGGCTTTC ATTACACTGT GCCATGCACT AATTTTATGT TTTCTTCATC  
3301 AGTTTTCAGT GTCTGAAATT CAGTGTCAAA ATTCTAAGAC TACATATGAA

FIG. 4C



13/24

3351 TATCATTACA GTAAC TCAGC AATTCTATGT TACCAGTAAG TTTTCTGTA  
3401 GTTTAAAAAA AAGGTGGAAG AAGAAAGCAC AGATAGTTTA GCACATGGGT  
3451 AAAATCAGTA ACTATTTCTG ATGAGCTTGG TGAAGATGCT GTAAACCATG  
3501 CGACCACCAG TCCTGTTCTC TGTGCTTTCA GATGTTTCGTC GTGGGTCTGC  
3551 TTGGCCTCCT TGCAGCTCCT GGTTTTGCTT ACGTAAGTCT CATTTTCTG  
3601 AAGTTCATTG TCAAAACTGC ATTTACAGTG AAATGTGATC TTAAGTCACC  
3651 CTCTGCTTCT TATGAACATT AGACGGTCAA CATCAATGGT AATGATGGCA  
3701 ATGTAGACGG AAGTGGACAG CATTCGGTGA GCATCAATGG TGTGCACAAC  
3751 GTGGCCAATA TCGACAACAA TAACGGCTGG GACTCCTGGA ATAGCCTCTG  
3801 GGA CTATGAA AACGTATGTA ATGGACACAC AGGGTAAAGA TATGGTGTAG  
3851 CCACCACCCA TTAAAATTTT TGAGGTGAAT TCTAGCTGTT CATGAACATT  
3901 AAAAGCTACC AGTAAAAGTG CCCATTCCAC TCAAACAAT TTTACTTTTT  
3951 TGCATATAAT TATTGCTAAT AAGTATTACA CAATAGGTCG AAATTCAAAG  
4001 GGATCAATAG TAAGGATAAA AACTATGTAC AAAGACAAAC ACAGCATCCT  
4051 TTGGTCTTCC CTGCAGAGAG TCTCCATGAT GTTAAAGGTC CAATGTTTTA  
4101 TGGAGGCTGA ATGAAATACG AATGCCTCTG TGATGGAAAA GGCCCAACAT  
4151 CTTATGGAGA ATGAGTGAAG TATGAATGCT ATTAGTTGTA AGAGAAGGCG  
4201 ATGCAAAGCA ACACTTGGCA CCACCTGCCA ATTACTACTT TCCTATTTAA  
4251 ATGTAGTTTA AAAAGCAAAG CCTGTCTTCC CTGCCTCCTG GAAACACTGC  
4301 GGATGGAGGT AGACCAAGGT ATGACAGCCT TTAAAAGTTT GTCAGCAAAA  
4351 CACTCCCCCA TACACACATA CACACACCCT CCTACTACAC TGGA ACTGAA

FIG. 4D



14/24

4401 GCAAAGGCAG TGGGTTAGAT ATATCCACCC TCTAAGAGTT TGCAGGTCAT  
4451 CTATATATGA TAGCCAGAGA CACAACTGCA GGACAGCCAG ACTCTGAGCA  
4501 CTCTCCCCAG CTCCTTGTAG CTCTGTTTCA GTGGTGACTT GTGACAAGAA  
4551 TCCTGGGGAA CCTGTGCCTC ACTGTTCTCT GTCTTCTTTA ATAGAGTTTC  
4601 GCTGCCACGA GACTCTTCTC CAAGAAGTCA TGCATTGTGC ACAGAATGAA  
4651 CAAGGATGCC ATGCCCTCCC TTCAGGACCT CGATACAATG GTCAAGGAAC  
4701 AGAAGGTAAA GTCCTGCCTT CTTCTTTGGA GTGACAGGAA GTCTTACAGT  
4751 CTCCAGTACA CAGTGAAGTC ACCCCCATTC CCTCTTTGGT GGAGCATGAC  
4801 AGCATGTTTG TCATGATAAA TGCCACAAAC ATGTAAAACT GTTCAGTGTC  
4851 TGCCTGAATG GAGGGTGGCT TCCACTGTGT CAGATGCCGT GGCCACATC  
4901 TGCCTCTGCA GGGTCCAGTA AAGCACTGGC TATCTTGAGT GTCAGAGACC  
4951 CAAAGGTCTG TACACTTCAG TACAAGCCCT CCATATTTCA AGGGCACACT  
5001 CCTACAGTCG TTGGGGTTAT CAGAACTAGC AAACATAGAG ACTGGATTTT  
5051 CAGATGAAAA GAAATCCTTT TTAAAGTCTA AGTATGCCTT ATACAATGTT  
5101 TGAGATATTC TCAATACTAA AAAAAAAAAA ATTGTTGCTT GCTTGAAAAAT  
5151 CAAATGTAAC CAAGTGCCT ATATCCAGTG TCAATCATGG CTGTAGTAGA  
5201 TGGGAAGAGG GAGCCCGTGG TTTTCACAGT CAGACGCCTG AGTTATTCTT  
5251 CTAAGTGATA AATTGGTTCC TATAACAAGC AAGCCAGTGA ATATAAATAA  
5301 GCTCTATCTC AGAAGTTATC CTGTAGTGCT ACCCTAGAAT CTAAGAGAGC  
5351 AAAAGTGCTT CAAATTTTCA AATAAGTTTT GCTTTGGACT TCTGTTTTTC  
5401 TAAACAATA TAACTTCAAA CCATCTAAGC CTCGTGGGAC ACTTAGAAAT  
5451 ACCAAGCCAT TCAAAGCTAG AATTGTTTCT TCACCTTACT TGAAAACAAA

FIG. 4E

15/24



5501 ATGACAACCA AAAATTGTCC CCACTGCCCT TGTACATCTT CAGATCAGTA  
5551 AAGTCCTGGG CTCAGGGATC ATTCACTTTC TTTCTTTCCT TTCACACTCA  
5601 ACTTCAGGGT AAAGGGCCTG GAGGAGCTCC TCCCAAGGAC TTGATGTACT  
5651 CCGTCAACCC TACCAGAGTG GAGGACCTGA ATACATTCGG ACCAAAGATT  
5701 GCTGGCATGT GCAGGGGCAT CCCTACCTAT GTGGCCGAGG AGATTCCAGG  
5751 TGTGTACCCT GAGATGCTGT ATATCCCAAT GCAGTACTGA GAGAGCCATC  
5801 AGACACTCTA AAGTGTGACC ACAGACGGAC CAATCATGTG GATTATCAGA  
5851 GCAAACACTT GCTTGCTCCT TGTCAGACAG TTGTCCATGC TTCAAAAGTT  
5901 CATTAAAAAA AATAGTTCAC AGGCTCCTCA CAGAAACCTT AGTAGAATCC  
5951 ACAGCTTCTG CTCTTAGTCT TACTTTTTAG AACTGAGAC CCAGAGAAAG  
6001 GTCACAAAAC TTTTGTCTGG CTCAGGTTCT ATGTCTTTAA CTTTATAGAA  
6051 TACCGTCTTT CTGGGTGGGT GGGCTCTAGA GTAAACTTCA AGTGAGTTCA  
6101 AGGAAAGCAT GAGAAGTAGG GAAGACCAA TGAAAGGAGA ATGCCAATGA  
6151 AATCTATCGA TTCTATAGCG CCAATGCTTA ACTCCTAGGC GTTCAAAGAA  
6201 TAGTATCCAC AAGGTGTCAG CCTAAGATCC TAATCTAACA GCAAGTTTTT  
6251 AGATCTCTGA AGTGAAAAGA GAAAGCAAGA GAGGAACAGA GACAGAAACA  
6301 GTAAGAGACA GAGAGGCAGA GACAAAGAGA CAGGGAGAAT AGAGAGGGAT  
6351 TAAAATTAAT ATATAGTTTA GAAATTACGA CTCCTCACAG TCCCTGCAGA  
6401 GTCCTAGGAT AGGCACTGAT TTGGA CTCTT TTTCTTCTCA CTAGGACCAA  
6451 ACCAGCCTTT GTACTCAAAG AAGTGCTACA CAGCTGACAT ACTCTGGATT  
6501 CTGCGGATGT CCTTCTGTGG AACATCAGTG GAGACATACT AGAAGTCACA  
6551 GGAAAACAAC CCGTGGGCTC TGACCATCGC AATGCTTGAT TATGAGAGTG

FIG. 4F



16/24

6601 TTCTCTGGGG GTTGTGATTA GCTTCTTTAA GGCTCAATAA ACCCACGTGG  
6651 CAGCACATCC AGTTTGTAAT GACATGCCTC ATGACTTCTA TGGGAGTCCA  
6701 ATGTGGCACC TGCCAGCCTG TATTCAGGAC CTCTCCGCTA TAAAGCATCC  
6751 CTCCAGAGTT TTCAAATACT ACAAAGCACA GCCTGGGTTT GGGCTCAGAT  
6801 AGGCCACTGC TGCCTGACTA CATTACAGAC AAACAAGTTT TAAAAGAAAG  
6851 AAAAAAGAGC TCAGAGTGGC TGGAATCAGC AAGGGTGTTT TTCCTGCAAG  
6901 GAGCCAGAAG TATCAATAAT CACCCAAGGA GGAGACACTG GGAATGAGAG  
6951 ACTAGAACAC ACGCCTGCAG ATACGGAGAA CCTCAGCATT GCCGCTCTCT  
7001 CCCATAACTG CACACCCCCT TCTGTAACT CTGCTTCTTT CTTTCACCTG  
7051 AAGATGGCCC TTGCTTTTTT TTATTATAGG ACANGATAAC TAGACCAGAA  
7101 AGTCAACCTG ACTCTCTACA TTTATATGTC TTCCCAGNTC AAGAAATATT  
7151 ATTTACTGGT GAATGGCACT TCTATATTCC CTTGGTTCAA TAAGTCTACA  
7201 GGATCCATTC ATTGACAGGC CAAGAGTGAG ATCACATGAT ACCCAAGCAC  
7251 ATGGGTCTTT CTTGAAGGA GAAGGATCCA

**FIG. 4G**





1 ATGTTTCGTCGTGGGTCTGCTTGGCCTCCTTGCAGCTCCTGGTTTTGCTTACACGGTCAAC  
61 ATCAATGGTAATGATGGCAATGTAGACGGAAGTGGACAGCATTCCGGTGAGCATCAATGGT  
121 GTGCACAACGTGGCCAATATCGACAACAATAACGGCTGGGACTCCTGGAATAGCCTCTGG  
181 GACTATGAAAACAGTTTCGCTGCCACGAGACTCTTCTCCAAGAAGTCATGCATTGTGCAC  
241 AGAATGAACAAGGATGCCATGCCCTCCCTTCAGGACCTCGATACAATGGTCAAGGAACAG  
301 AAGGGTAAAGGGCCTGGAGGAGCTCCTCCCAAGGACTTGATGTACTCCGTCAACCCTACC  
361 AGAGTGGAGGACCTGAATACATTCGGACCAAAGATTGCTGGCATGTGCAGGGGCATCCCT  
441 ACCTATGTGGCCGAGGAGATTCCAGGACCAAACCAGCCTTTGTACTCAAAGAAGTGCTAC  
501 ACAGCTGACATACTCTGGATTCTGCGGATGTCCTTTTGTGGAACATCAGTGGAGACATAC  
561 TAG

**FIG. 5**

18/24



1 MKLTMFVVGL LGLLAAPGFA YTVNINGNDG NVDGSGQQSV SINGVHNVAN  
51 IDNNNGWDSW NSLWDYENSF AATRLFSKKS CIVHRMNKDA MPSLQDLDTM  
101 VKEQKGKGGP GAPPKDLMYS VNPTRVEDLN TFGPKIAGMC RGIPTYVAEE  
151 IPGPNQPLYS KKCYTADILW ILRMSFCGTS VETY

**FIG. 6**



19/24

1 atgcctgact tctcacttca ttgcattggt gaagccaaga tgaagtacac  
51 aattgccttt gctggacttc ttggtgtctt cctgactcct gcccttgctg  
101 actatagtat cagtgtcaac gacgacggca acagtgggtg aagtgggcag  
151 cagtcagtga gtgtcaacaa tgaacacaac gtggccaacg ttgacaataa  
201 caatggatgg aactcctgga atgccctctg ggactataga actggctttg  
251 ctgtaaccag actcttcgag aagaagtcac gcattgtgca caaatgaag  
301 aaggaagcca tggcctccct tcaagccctt gatgcgctgg tcaaggaaaa  
351 gaagcttcag ggtaagggcc cagggggacc acctcccaag agcctgaggt  
401 actcagtcaa ccccaacaga gtcgacaacc tggacaagtt tggaaaatcc  
451 atcgttgcca tgtgcaaggg gattccaaca tacatggctg aagagattca  
501 aggagcaaac ctgatttcgt actcagaaaa gtgcatcagt gccaatatac  
551 tctggattct taacatttcc ttctgtggag gaatagcgga gaactaa

**FIG. 7**



20/24

1 MKFTIAFAGL LGVELTPALA DYSISVNDDG NSGGSGQQSV SVNNEHNVAN  
51 VDNNNGWNSW NALWDYRTGF AVTRLFEKKS CIVHKMKKEA MPSLQALDAL  
101 VKEKKLQGKG PGGPPPKSLR YSVNPNRVDN LDKFGKSIVA MCKGIPTYMA  
151 EEIQGANLIS YSEKCISANI LWILNISFCG GIAEN

**FIG. 8**



21/24

Human	1	MKFTIVFAGLLGVFLAPALANYNIDVNDDNNNAGSGQQSVSVNNEHNVAN	50
Pig	1	MKFTIAFAGLLGVFLTPALADYSISVNDDGNSGGSGQQSVSVNNEHNVAN	50
	51	VDNNNGWDSWNSIWDYGNNGFAATRLFQKKTCIVHKMKKEVMPSIQSLDAL	100
	51	VDNNNGWNSWNALWSYRTGFAVTRLFRKKSCIVHKMKKEAMPSLQALDAL	100
	101	VKEKKLQGKGPGGPPPKGLMYSVNPKNVDDLSKFGKNIANMCRGIPTYMA	150
	101	VKEKKLQGKGPGGPPPKSLRYSVNPNRVDNLDKFGKSIVAMCKGIPTYMA	150
	151	EEMQEASLFFYSGTCYTTSVLWIVDISFCGDTVEN 185	
	151	EEIQGANLISYSEKCSANILWILNISFCGGIAEN 185	

FIG. 9



22/24

1		50
Human	MKFTIVF.AG LLGVFLAPAL ANYNIDVN.D DNNNAGSGQQ SVSVNNEHNV	
Pig	MKFTIAF.AG LLGVFLTPAL ADYSISVN.D DGNSGGSGQQ SVSVNNEHNV	
Mouse	MKLTM.FVVG LLGLLAAPGF A.YTVNINGN DGNVDGSGQQ SVSINGVHNV	
51		100
Human	ANVDNNGWD SWNSIWDYGN GFAATRLFQK KTCIVHKMNK EVMPSIQSLD	
Pig	ANVDNNGWN SWNALWDYRT GFAVTRLFEK KSCIVHKMKK EAMPSLQALD	
Mouse	ANIDNNGWD SWNSLWDYEN SFAATRLFSK KSCIVHRMNK DAMPSLQDLD	
101		150
Human	ALVKEKKLQG KGPGGPPPKG LMYSVNPKNV DDLSKFGKNI ANMCRGIPTY	
Pig	ALVKEKKLQG KGPGGPPPKS LRYSVNPNRV DNLDKFGKSI VAMCKGIPTY	
Mouse	TMVKEQK..G KGPGGAPPKD LMYSVNPTRV EDLNTFGPKI AGMCRGIPTY	
151		188
Human	MAEEMQEASL FFYSGTCYTT SVLWIVDISF CGDTVEN	
Pig	MAEEIQGANL ISYSEKCISA NILWILNISF CGGIAEN	
Mouse	VAEEIPGPNQ PLYSKKCYTA DILWILRMSF CGTSVETY	

**FIG. 10**

23/24

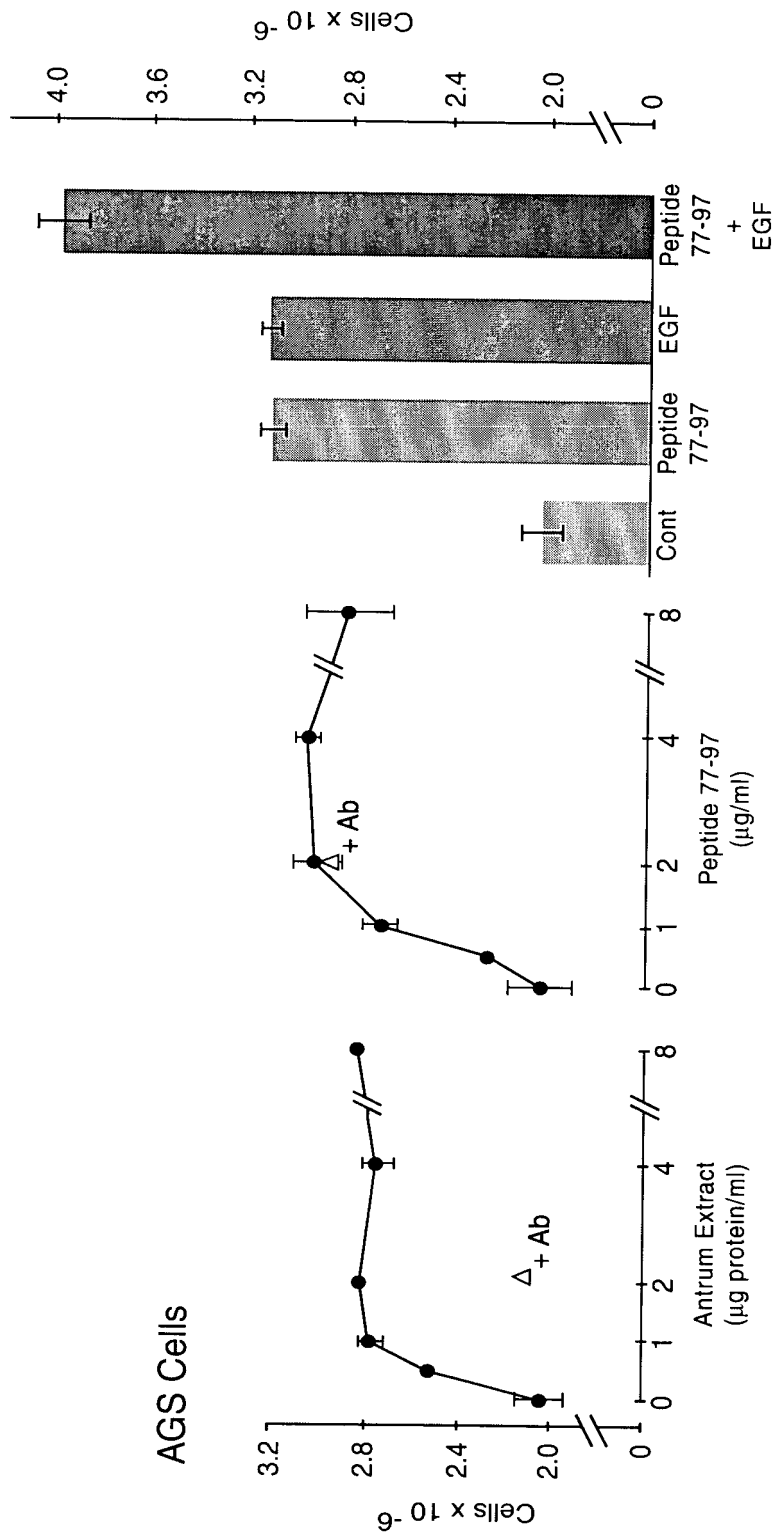


FIG. 11

24/24

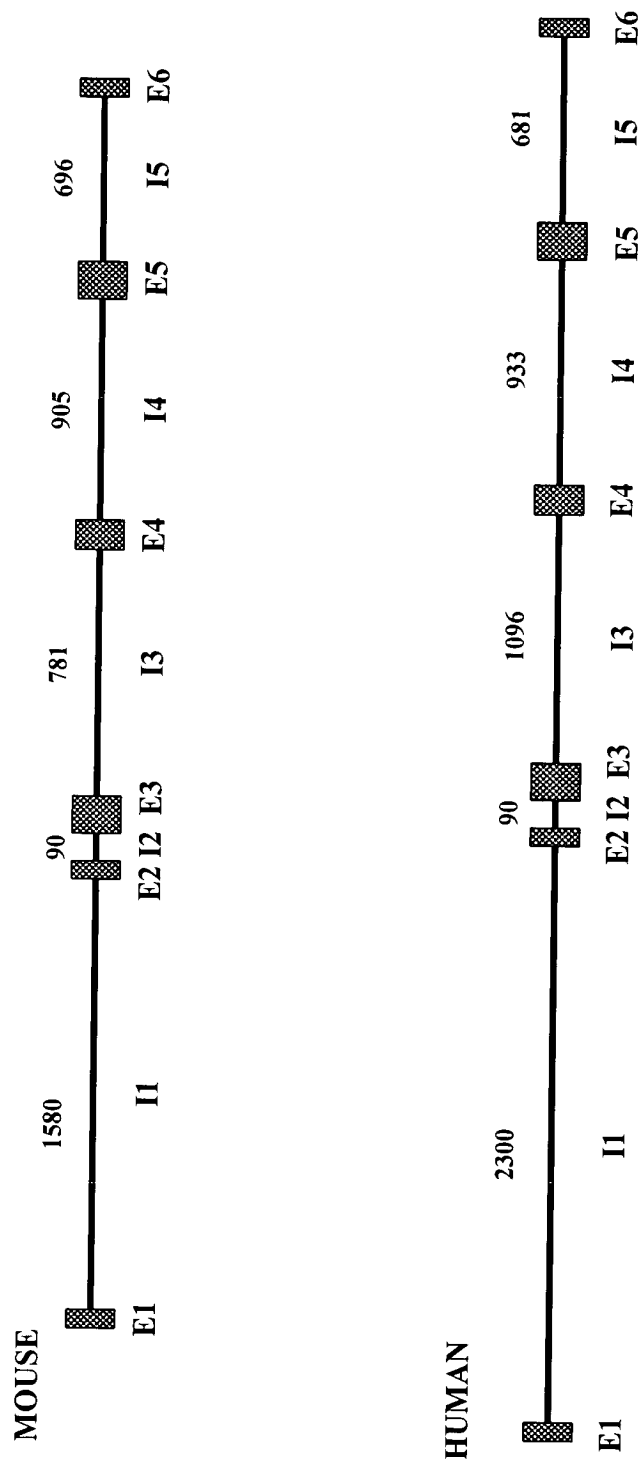


FIG. 12